

What is claimed is:

1. A method of protecting against loss of downhole tools in wells, the method comprising the steps of:

making repeated use of a wire rope to suspend downhole tools in wells, the downhole tools being suspended from a downhole end of the wire rope;

testing the integrity of the wire rope from time to time according to a maintenance schedule; and

shortening the wire rope when the wire rope fails integrity testing.

2. The method of claim 1 in which the maintenance schedule comprises regular tests of the integrity of the wire rope.

3. The method of claim 1 in which the maintenance schedule comprises monthly tests of the integrity of the wire rope.

4. The method of claim 1 in which testing the integrity of the wire rope comprises testing the downhole end of the wire rope.

5. The method of claim 4 in which testing the integrity of the wire rope comprises making plural tests of the integrity of the wire rope.

6. The method of claim 5 in which the wire rope is shortened when the wire rope fails any one of the plural tests of the integrity of the wire rope.

7. The method of claim 6 in which the wire rope is shortened when the wire rope fails a test based on more than one of the plural tests of the integrity of the wire rope.

8. The method of claim 1 in which testing the integrity of the wire rope comprises performing a test selected from the group consisting of:

- a visual test of corrosion damage;
- a visual test for broken wires in the wire rope;
- a test of the longitudinal strength of at least one wire from the wire rope;
- a test of the stretch of the wire rope;
- a test of the diameter of a wire from the wire rope;
- a test of the diameter of the wire rope;
- a test of the flex strength of a wire from the wire rope;
- a test of the twist strength of a wire from the wire rope; and
- a test of the weight of a segment of the wire rope.

9. The method of claim 8 in which testing the integrity of the wire rope comprises a test of the strength of at least one wire from the downhole end of the wire rope.

10. The method of claim 9 in which the wire rope is shortened when the tested wire has a strength less than 60% of a new wire.

11. The method of claim 8 in which testing the integrity of the wire rope comprises a test of the degree of stretch of the downhole end of the wire rope.

12. The method of claim 11 in which the wire rope is shortened when the wire rope has stretched by 25%.

13. The method of claim 8 in which testing the integrity of the wire rope comprises a test of the diameter of the downhole end of the wire rope.

14. The method of claim 13 in which the wire rope is shortened when the diameter of the wire rope is less than 75% of a new wire rope.

15. The method of claim 8 in which testing the integrity of the wire rope comprises a test of the flex strength of a wire from the downhole end of the wire rope.
16. The method of claim 15 in which the wire rope is shortened when the wire rope breaks when a single wire from the wire rope is flexed 25% of the number of times a wire from a new wire rope can be flexed without breaking.
17. The method of claim 8 in which testing the integrity of the wire rope comprises a test of the twist strength of a wire from the downhole end of the wire rope.
18. The method of claim 17 in which the wire rope is shortened when the wire rope breaks when a single wire from the wire rope is twisted 25% of the number of times a wire from a new wire rope can be twisted without breaking.
19. The method of claim 8 in which testing the integrity of the wire rope comprises a test of the weight of a segment from the downhole end of the wire rope.
20. The method of claim 19 in which the wire rope is shortened when the weight of the segment of the wire rope is less than 80% of the weight of an equal length segment of a new wire rope.
21. The method of claim 8 in which testing the integrity of the wire rope comprises performing plural tests selected from the tests listed in claim 8.
22. The method of claim 21 in which testing the integrity of the wire rope comprises performing at least three of the tests listed in claim 8 and the wire rope is shortened when any one of the performed tests fails.
23. The method of claim 22 in which the wire rope is shortened when the wire rope fails a test based on more than one of the performed tests.

24. The method of claim 23 in which the tests are performed regularly.
25. The method of claim 24 in which the tests are performed monthly.